

seem to be always more or less depressed, or at least flattened, along their occipital margins; in some cases this depression is hardly noticeable, in others it amounts to a definite and even sharp sulcation (most conspicuous near the sides of the head), and in the latter case the occipital margin sometimes, but not always, has quite the appearance of a sharp carina. Every possible intermediate condition between the mere "flattening" and the sharply margined "sulcus" seems to occur in one species or another. But, unfortunately, it is only in certain species that the presence or absence of a "sulcus" appears to be a constant character; and even in these it is probably not absolutely to be trusted, though it is often useful to confirm or throw doubt upon an identification otherwise arrived at. This character, also, is apt to display itself satisfactorily when, *and only when*, the specimen is held in a particular position, and viewed in a particular aspect. All which seems to point to the moral that there can be no "royal road" to the determination of these insects, and that, however carefully Tables may be constructed, they are certain sometimes to mislead the students whom they are meant to help.

I regret that though I have compressed these preliminary remarks into the narrowest compass that I could manage, they still occupy so much space that my actual "Tables of British *Dolerus*" will have to wait for a further instalment of these papers.

NOTES ON *BRACONIDÆ*, X.:

ON THE *PACHYLOMMATINÆ*, WITH DESCRIPTIONS OF NEW SPECIES.

BY CLAUDE MORLEY, F.Z.S., F.E.S.

In 1907 I examined a pair of *Braconidæ*, which were quite unknown to me and appeared to fall into none of the Divisions of that Family set forth by Marshall (*Bracon. d'Europ.*, i, 63). Upon closer investigation I was struck by the similarity of certain features with the aberrant **Pachylomma buccata*, Bréb.; and I have no doubt that

* This genus has been thrice named: first, Fallén, in his "Specimen novam Hymenoptera disponendi methodum exhibens" (Lund, 1813), erected a genus *HYPERIZON*, thus characterized—"Antennis tenuis; abdomine petiolato; alarum areis costalibus aut tribus aut duabus; areola intermedia areaque apicalari nullis" (*Grav. Ichn. Europ.*, i, 61); and I am not persuaded that, with the amplification given it by Nees von Esenbeck in 1834 (*Hym. Ich. affin. Mon.*, i, 27), it has not as good a right to priority as many in general use to-day, although it certainly is, in its original form, utterly inadequate. Secondly, De Brébisson erected (*Encycl. Méth.*, x, 23) his genus *PACHYLOMMA* in 1825, which should fall, according to Verrall, through incorrect orthography; for which, cf. Westwood, *Trans. Ent. Soc.*, iii, p. 278, *et Mod. Class.*, ii, 136, fig. LCCIV. Lastly, it was again brought forward by Curtis in his "Characters of some undescribed Genera and Species, indicated in the Guide to an Arrangement of British Insects" (*Ent. Mag.*, 1833, p. 188), under the very appropriate name *PLANCHUS*, by which it was for a very long time known in Britain.

there is here one of the lost links connecting the *Pachylommatinæ* with the more typical *Braconidæ*. Moreover, it is interesting to note that the relationship distinctly appears to be with the *Euphoridæ* as remarked by Marshall rather than with the *Aphidiidæ*, as was regarded to be the case with some complacency by Ashmead. Respecting the neururation I know nothing quite similar, though that of *Perilitus æthiops*, Nees, is the most analogous with which I am acquainted. The connection rests in the knowledge that a representative of this subfamily exists with the cubital emitted from the recurrent nervure, with the abdomen rising from the apex of the metathorax and the posterior tarsi simple. Some objection may be raised to the inclusion of my genus in this subfamily on account of these very points, the distinct prothorax and the multi-articulate antennæ; but I consider the relative similarity of the neururation, elongate legs and coxæ, peculiarly short thorax and the identically conformed abdomen, amply justify its position therein.

This group was for long placed in the *Evaniidæ* on account of the height at which the abdomen of the typical species is inserted upon the metathorax, but it is now universally recognised as belonging to the *Braconidæ*. It has hitherto consisted of but two species of a single genus, *Pachylomma*, the association of which with ants has been related by Dr. Giraud, though no direct parasitism was proved. Ratzeburg has also erroneously supposed our species to prey upon a Sternoxid beetle. The peculiarly prominent eyes, abnormal neururation and elongate legs, however, may be supposed to have been evolved for the purpose of escaping, upon arriving at maturity, from the dark and close-packed nests of the ants, in which the explanate tarsi of *Pachylomma* probably materially assist.

P. buccata would appear to be rare and met with but singly in Britain, though Giraud's observations go to prove it gregarious, and the same is said by Nees, who took it in "*locis suffocatis sylvaticis*" about Sikershausen during July and August. None of our local lists, such as Bignell's very full one for South Devonshire and Dale's for a part of Dorset, mention it; Curtis knew but a single female, probably from the London district, in 1833; while Westwood obtained the specimen he figured from the Continent. Marshall appears to be the only person who has noticed it, since Haliday* (*Ent. Mag.*, 1833, p. 343 and 1836, p. 22), though there is a long series from Stephens' col-

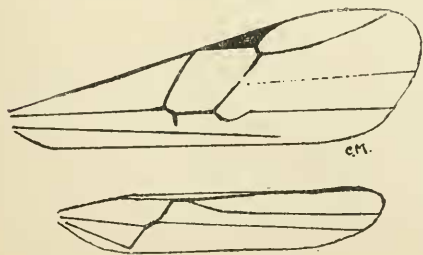
* We must except Abel Ingpen, A.L.S., M.E.S., who records it among the autumnal rarities of the New Forest in his curious little "Instructions for Collecting, Rearing and Preserving British and Foreign Insects;" London, 1839, p. 61.

lection in the British Museum. The former author found it at Nantua, near Ajaccio, and thrice in England, principally at Freshwater Bay, in Pembrokeshire, where the females were associating with *Myrmica scabrinodis*; there is a specimen from Birch Wood in his collection. I possess but two examples, one captured at Greenings, near East Grinstead, in July, 1872, by Wilson Saunders, and the other by myself on my study window in Monks Soham House, Suffolk, on July 1st, 1905. Near Vienna, Giraud once found both sexes hovering over "une société de tres petites fourmis," early in the same month (Verh. z.-b. Ges. Wien, 1857, p. 11). In France De Gaulle records *Pachylomma buccata* as associated with *Lasius brunneus* and *Myrmica scabrinodis*, and the Continental *Pachylomma cremieri*, Rom., with *Lasius fuliginosus* and *Formica rufa* (Cat. Syst. et Biol. Hym., 1908, p. 86). The latter, of which Giraud has also given an interesting account, extends thence to Russia.

SPILOMMA, *n. n.*

Head not large, very strongly transverse, and distinctly broader than the thorax; eyes very large, ocelli not prominent; face narrow and very strongly concave. Antennæ filiform, with twenty-nine flagellar joints; as long as the body. Thorax very short and somewhat gibbous; prothorax neither short nor concealed; mesonotum dull with very obsolete notauli, basally longitudinally aciculate before the glabrous scutellar fovea; metathorax short, shagreened, and longitudinally carinate in the centre, sparsely pubescent and normally convex, with a longitudinal impression running down each side to the coxæ. Scutellum distinctly convex, with its disc deplanate; postscutellum tuberculiform. Abdomen glabrous and strongly nitidulous, much longer than the head and thorax, falciform, and laterally strongly compressed; basal segment emitted from apex of thorax, narrow, subcylindrical, discally aciculate in the centre, whence the spiracles are not very prominent; second, fourth and fifth segments of equal length, shorter than the first, narrow and cylindrical; third segment but two-thirds the length of the second; terebra distinctly exerted, as long as the basal segment, pilose, with the valvulæ flat, not very slender and apically truncate. Anterior legs long and slender; the hind ones very long, with elongate coxæ, and their tarsi not spatuliformly dilated, basal joint not quite as long as the following united. Wings somewhat narrow and not ample, with the

neuration distinct; two cubital cells; radial cell narrow, elongate triangular, and extending to apex of wing; stigma narrow, elongate, lanceolate and externally subconcave, emitting the radial nervure beyond its centre; basal abscissa shorter than the breadth of the stigma; second elongate; cubital nervure obsolete, rising from the



fenestra between the transverse-cubital and recurrent nervures; first cubital cell not discreted from the first discoidal; second discoidal small, transverse, and open below at both extremities; posterior nervure strong; margino-discoidal nervure emitted from the median distinctly before the medio-discoidal; second posterior basally curved. Hind-wings with the median abscissa of subcostal nervure elongate; median nervure emitting the medio-discoidal but slightly before the transverso-discoidal; anal nervure strong and elongate; radial and cubital nervures extending to apex.

S. FALCONIVIBRANS, sp. n.

A clear testaceous species with the eyes, flagellum, anus, terebra, tarsi, and the upper side of the head, thorax and basal abdominal segment, black; the remaining segments, especially above, hind coxæ basally, stigma, nervures and tegulæ, brunneous; frenum, scape, base of the front tarsi and of the strongly bordered occiput, pale.

Length, $4\frac{3}{4}$ mm.; terebra, $\frac{1}{2}$ mm.

One male and five females were bred on May 28th and 29th, 1907, from a nest of *Formica fusca*, Latr., brought to London from Porlock in North-West Somerset, by Mr. H. St. John Donisthorpe, F.Z.S.

The above species undoubtedly belongs to the *Pachylommatinæ*, and its relationship is certainly with the *Euphorinæ*. I will conclude this short paper with the description of an undoubted Enphorid with *Pachylommatis* tendencies.

EUPHORUS, Nees.

[*Char. Gen.* Mandibles normal and not divergent; clypeus normal and not excavate; face simple. Antennæ normal. Metathorax neither vertically truncate nor apically excavate. Abdomen more or less petiolate, with the basal segment not longer than the remainder united; incisure of 2nd-3rd segment rigid and inflexible, though distinct, and with the following not retracted; terebra concealed. Second cubital cell large and subobsolete, third wanting; radial cell very short].

I cannot see the palpi; and the basal segment is so short as to be termed subsessile, were it not that the neuriation is entirely distinct from that of the *Calyptinæ*.

E. BISTIGMATICUS, sp. n.

Head black, transverse, coriaceous punctate, posteriorly rounded, and laterally subprominent between the scrobes; face smoother, a little narrowed apically, centrally sub-buccate and brunneous, laterally stramineous; clypeus short, stramineous, strongly transverse, apically truncate and subreflexed, with its basal foveæ large and deeply impressed; mandibles concolorous, large, narrow and somewhat weak, apically rufescent and bifid with the upper tooth much the longer; eyes not very prominent, extending to base of mandibles. Antennæ black with scape of ♀ entirely stramineous, and subfiliform with the three or four basal joints of ♂ stout and strongly pilose; flagellum with fourteen elongate and subcylindrical joints, not

longer than the body. Thorax coriaceous punctate and black, with the prosternum pale stramineous; mesonotum tumidous with no notauli, its apex rounded and sub-produced above the prothorax; metanotum somewhat short and convex, strongly rugose, with no distinct areæ, but with traceable lateral carinæ and large spiracles. Scutellum not convex, dull and reticulate, with simple basal foveæ. Abdomen black and subnitidulous, finely sculptured and becoming paler basally beneath, of ♂ strongly deplanate towards the apex, and of ♀ subcompressed throughout, basal segment not twice longer than apically broad, finely coriaceous and longitudinally aciculate, laterally strongly constricted behind the very prominent central spiracles, whence it is contracted to its base; second, third and (in ♂) fourth segments subquadrate and hardly shorter than the first; remaining segments short and pilose; terebra stout, black, and shorter than half the basal segment; valvulæ exerted. Legs not elongate, entirely stramineous or (in ♀) with the coxæ nigrescent and the hind tibiæ and tarsi infuscate; calcaria stout and of equal length; ♂ with intermediate tarsi, somewhat stout, and all the joints of the hind ones distinctly incrassate, subspatuliform. Wings



evenly and distinctly, though not deeply, infumate with the nervures piceous and not very definite; costa broad and emarginate above the large and infuscate stigma;

metacarpus very short, and so broad as to form a pseudostigma; tegulæ piceous, radix hyaline; hind-wings somewhat broad with no distinct transverse nervures.

Length, ♂ ♀, 3 mm.

The subsessile abdomen is very distinct from that of all known *Euphori*, except Haliday's unsatisfactory *E. mitis* (cf. Entom., 1908, p. 287), from which it materially differs in the mesonotal sculpture and notauli, number of flagellar joints, pedal coloration, and petiolar structure. The peculiar conformation of the hind tarsi forms a very distinct link with *Pachylomma*, which I think may now, upon a consideration of the above two species, be most naturally placed between the *Areolarii* and *Euphorinæ*.

This species was discovered by Mr. H. St. John Donisthorpe, who writes (*in litt.* 9th, 12th, iv.09), "I caught two females in July, 1906, and saw several others hovering over a nest of *Formica rufa* at Weybridge and striking at the ants (Ent. Rec., 1907, p. 5); and I bred the male out of my *F. rufa* observation nest from Weybridge, April 13th, 1907 (Ent. Rec., 1907, p. 255). Wasmann says he is sure it is a new species, and tells me he has taken it at Luxemburg with *F. rufa* and *F. pratensis*." Mr. Donisthorpe has subsequently taken this species at Weybridge, July 5th, and at Bewdley, July 20th, of the present year; and Mr. A. H. Hamm took two ♀s

near New Park Enclosure in the New Forest on August 9th, 1908, "hovering over the nest of *Formica rufa*, every now and then descending on to the back of an ant and resuming its hovering flight."

The hovering habit of all these myrmecophagous Braconids is noteworthy.

Monks Soham House, Suffolk :

May 15th, 1909.

Bembidium quadripustulatum, Dej., in Sussex.—In May of this year I took two specimens of *Bembidium quadripustulatum*, Dej., in a swampy place by the side of some running water in a small wood near Pulborough, Sussex. This is, I believe, a new locality for the insect.—G. W. NICHOLSON, University College Hospital, London : July 29th, 1909.

Note on Omalius brevicolle, Th.—With regard to the name of this species recently introduced by Dr. Joy, and queried by me in a recent number of this Magazine (*antea*, p. 135), I have received a note from Dr. Bergroth pointing out that Herr Luze has recently revised the Palearctic *Omaliidæ*, and states that, having examined authentic specimens of *O. foraminosum* he finds they are different from *O. brevicolle*, and our North European species should therefore bear the latter name.—D. SHARP, Brockenhurst : August 3rd, 1909.

Molorchus minor near Royston.—Mr. Newill's note in the August number of the Ent. Mo. Mag. on the occurrence of *Molorchus minor* in Surrey is particularly interesting to me, as on the same day on which he made his capture, viz., Whit Monday, I had the good fortune to take four specimens of the same beetle on hawthorn blossom at the margin of a wood near Royston. Royston itself is on the borders of Hertfordshire and Cambridgeshire, but the wood in question is situated on the Hertfordshire side of the town. Two years ago also I took a single specimen of this insect in the same way about a mile from where it occurred this year.—E. A. BUTLER, 56, Cecil Park, Crouch End, N. : August, 1909.

[*M. minor*, as is well known, attacks Conifers, and it was once found in some numbers by Mr. R. W. Lloyd and myself at Mickleham, emerging from the branches of a fallen spruce-fir, many of the specimens, of course, being out of reach. It frequents flowers, especially hawthorn, in the immediate vicinity of the tree in which it passed its earlier stages. I believe it is always attached to spruce-fir, and in the South of England the insect may be expected to occur in places where this tree is planted.—G. C. C.]

Telephorus darwinianus, Sharp, on the banks of the Medway.—While going over my father's *Telephoridæ*, with a view to cleaning and recarding them, I picked out from his series of *T. lituratus* seven specimens which should be referred to